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# Office of Project Support Services Overview

Marc Kaducak

2014 EVMS Surveillance Review

10-Dec-2014

# Outline

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- OPSS Mission
- Organization
- Initiatives
- Response to 2013 Surveillance
- Closing thoughts

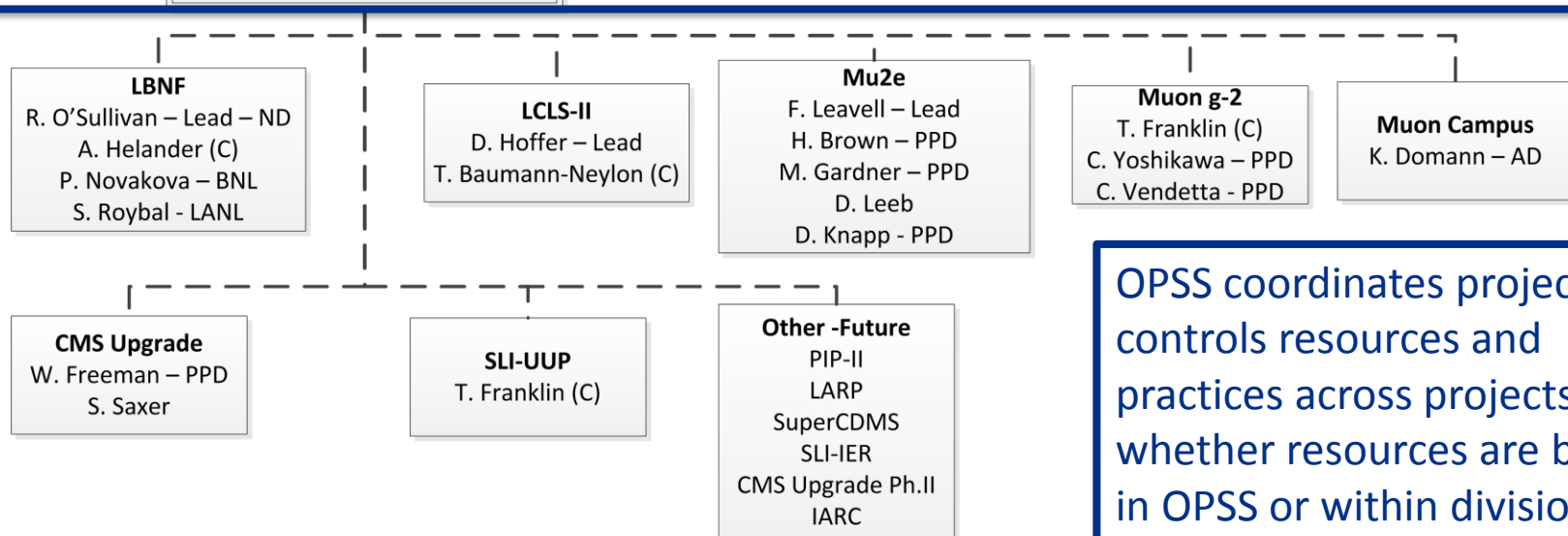
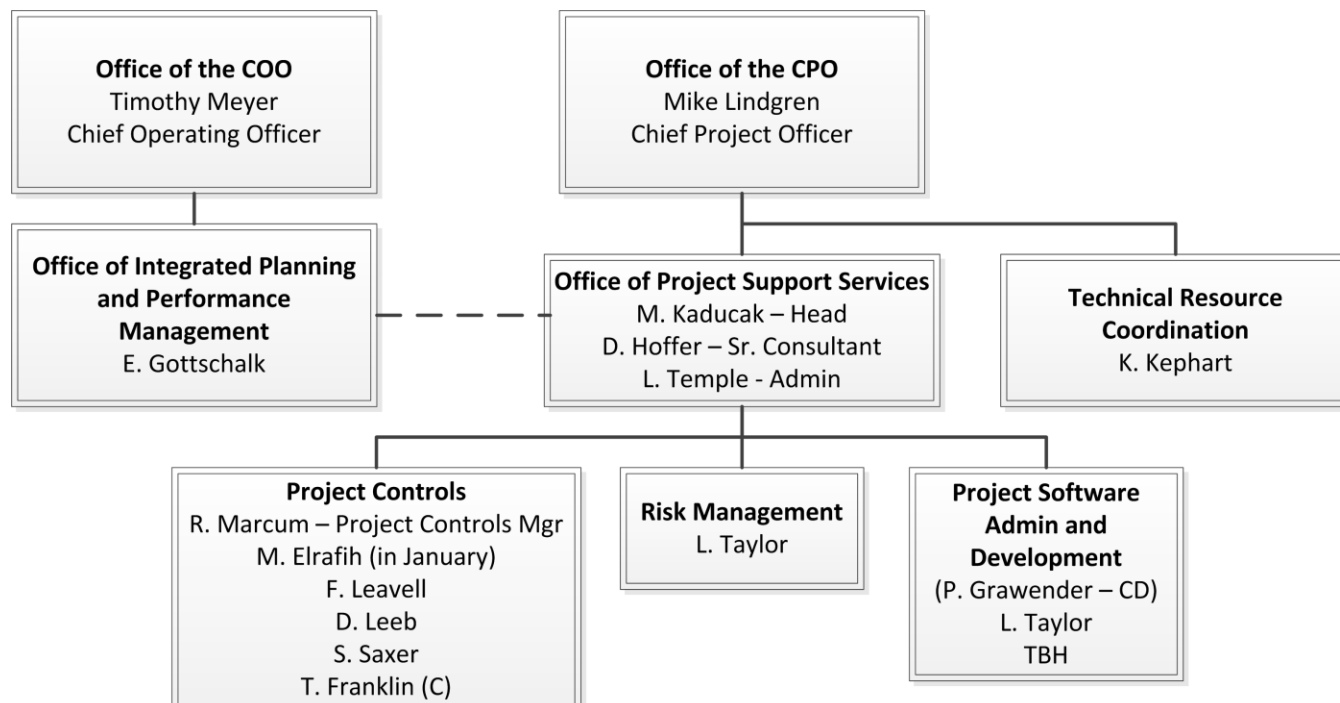
# OPSS Mission – We help projects

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## Some OPSS functions include:

- Supporting the lab's large scientific and facility projects.
- Establishing standard project management processes, tools and training designed to both maximize project success and comply with DOE and Fermilab rules and expectations.
- Supplying project controls resources, providing mentorship through all project phases, maintaining the Earned Value Management System, and organizing and help preparing for the reviews that advance the projects.

It requires lots of work to maintain and optimize our project management systems, but the science that our projects yield makes it worthwhile.



OPSS coordinates project controls resources and practices across projects, whether resources are based in OPSS or within divisions.

# Recent Hires and Transfers (2014)

## New Hires


- Rich Marcum – Fermilab Project Controls Manager
- David Leeb – Project Controls Specialist
- Mohammed Elrafih – Project Controls Specialist (starts January 2015)
- Lisa Temple – OPSS Admin

## Recent Transfers

- Suzanne Saxer – formerly NOvA/PPD
- Marc Kaducak – formerly Technical Division

### Question

Richard Marcum

 You replied to this message on 11/14/2014 5:16 PM.

Sent: Fri 11/14/2014 2:28 PM

To: Marc L Kaducak

Best Regards,

Richard Marcum, PMP, EVMP  
Project Controls Manager  
Office of Project Support Services  
Fermi National Accelerator Laboratory  
Phone: (630) 840-8236



### VARIANCES

Favorable is Positive, Unfavorable is Negative

Cost Variance	CV	=	BCWP - ACWP	CV % = (CV / BCWP) * 100
Schedule Variance	SV	=	BCWP - BCWS	SV % = (SV / BCWS) * 100
Variance at Completion	VAC	=	BAC - EAC	

### PERFORMANCE INDICES

Favorable is > 1.0, Unfavorable is < 1.0

Cost Efficiency	CPI	=	BCWP / ACWP
Schedule Efficiency	SPI	=	BCWP / BCWS

## Other Contributors and Collaborators

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- Office of Integrated Planning and Performance Management (IPPM)
  - Considers projects in enterprise context
  - Works together with OPSS and others on strategic planning
- Project Management Improvement Initiative Steering Group
  - Comprised of PMs and PM experts from across the lab.
  - Responded to recommendations from previous PM related reviews
- PMO Consultant (Steve Foels)
  - Produced roadmap for OPSS in Spring 2014
- PM and PMCS community
  - Frequent formal and informal interaction with the community to share best practices and lessons learned

# In Progress Initiatives

- Build on PM Procedures
- Standardization of P6/Cobra practices
- Developing Templates (with PMII)
  - PMP
  - Risk Management
  - Quality Assurance
  - Statement of Work
  - BoE
- Tools (with IPPM)
  - eCAM Notebook. Working on Prototype in SharePoint
  - Enterprise Risk System
  - Lessons Learned Database

## Fermi Project Management EVMS Policy/Procedures

EVMS Certified System Documents		OPSS Guidance
#	Description	Desktop Instructions
Policy	FRA Earned Value Management Description EVMS Certification Letter	12.PM-010.DT-01 - FRA EVMS Handbook
12.PM-001	Project WBS, OBS, RAM	
12.PM-002	Control Accounts, Work Packages, Planning Packages	12.PM-002.DT-01 - Guidelines for PMT 12.PM-002.DT-02 - Sale of Special Process Spares 12.PM-002.DT-03 - Tracking Uncosted Scientific Effort
12.PM-003	Work Authorization	
12.PM-004	Project Scheduling	12.PM-004.DT-01 - Guidelines for Developing a Schedule 12.PM-004.DT-02 - Guidelines for Scheduling Procurement Activities 12.PM-004.DT-03 - Guidelines for Milestones 12.PM-004.DT-04 - Guidelines for PMT 12.PM-004.DT-05 - Guidelines for Schedule Review Checklist
12.PM-005	Cost Estimating	
12.PM-006	Monthly Status Reporting	12.PM-006.DT-01 - Loading Forecast from Open Plan 12.PM-006.DT-02 - Loading Forecast from MS Project 12.PM-006.DT-03 - Monthly Accruals Process 12.PM-006.DT-04 - Project Office Procedures for Monthly Progress Updates 12.PM-006.DT-05 - NOvA ETC/EAC Monthly Process 12.PM-006.DT-06 - Guidelines for Preparing a Variance Analysis Report 12.PM-006.DT-07 - Guidelines for Understanding and Using a Schedule
12.PM-007	Change Control	12.PM-007.DT-01 - NOvA Change Request Procedures 12.PM-007.DT-02 - NOvA Project Office Procedures for Processing Open Plan Baseline Change Requests 12.PM-007.DT-03 - Guidelines for Rate Changes 12.PM-007.DT-04 - Contingency MR & UB
12.PM-008	EVMS Surveillance and Maintenance	

<http://www.fnal.gov/directorate/OPMO/PolProc/home.htm>

## 2013 CAR-01

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**CAR-01: Need for improved quality (meaningful, quantitative, complete) of variance analysis reports (VARs) and records to provide effective analysis of issues and proposed corrective actions.**

**Additional text from review report:** “VARs are inadequate for effective project management purposes; VARs were noted to be missing corrective actions and descriptions of variance impacts to budget, schedule milestones and/or critical path, explanations were generic or vague, and preparation was several months behind the occurrences. *This is a repeat issue from prior surveillances in March 2011 and March 2012.* The NOvA project is not in compliance with the Fermilab EVMS System Description and procedure.”



# 2013 CAR-01 Responses

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## Fermilab Responses to CAR-01 (from iTrack):

1.1 Institute a monthly review of remaining NOvA VARs to ensure that all active VARs meet laboratory-established quality attributes (prior to approval for new VARs.) The Head of OPSS will provide assistance as requested to ensure VARs meet quality standards.

Status: Complete. NOvA achieved CD-4.

1.2 Provide a monthly progress report on all open NOvA Project-responsible EVMS Surveillance Audit CAR/CIO responses/actions to the NOvA PMG and Fermilab Project Management Planning Board.

Status: Complete. NOvA achieved CD-4.

1.3 Define in simple matrix format the standard contents and quality attributes of a VAR, including the standards for timeliness in preparation and for complete and fully descriptive explanations, impacts and corrective actions. Incorporate this into relevant Fermilab EVMS procedures. Communicate expectations to Project management community.

Status: Complete. **Guidelines for VARs located at:**

**<http://www.fnal.gov/directorate/OPMO/PolProc/12.PM-006/DT/VAR%20Preparation-20140728.pdf>**

**Also – PMs will reject poorly written VARs**

## 2013 CAR-02

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**CAR-02: Coupling between risk management, Estimate-To-Complete (ETC), contingency, Management Reserve (MR) and Undistributed Budget (UB) accounts is not clearly defined and well understood across the NOvA CAMs. Some risks not quantified for cost and schedule impacts.**

**Additional text from review report:** “The identification of MR and UB on NOvA is not compliant with ANSI/EIA-748 or Fermilab EVM System description or procedure. The method and tools utilized to generate the ETC, EAC and evaluate available contingency created concerns with the accuracy of the ETC and the EAC reported to DOE, accuracy of the current MR and UB, and if remaining contingency is sufficient to cover remaining project risks. The EAC is not inclusive of all upcoming costs and so it is difficult to make an accurate assessment of remaining contingency, which prevents a full estimate of future conditions and likely sponsor future funding requirements. CAMs could not explain the methodology for evaluating ETC/EAC and were not confident that assessments of ETC for their Control Accounts were in the final project ETC/EAC.”

# 2013 CAR-02 Response

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## Fermilab Responses to CAR-02 (from iTrack):

**2.1 Ensure that the NOvA project ETC is complete** and reflects the full cost of work remaining on the project, including **clear and consistent** incorporation of the ETC analysis log, “assigned contingency” and risk mitigation actions so that all draws on contingency are fully accounted for.

Status : Complete for NOvA, which achieved CD-4. **OPSS has developed ETC/EAC training materials (located on OPSS Sharepoint) as part of the EVMS training program and conducted an ETC/EAC course on 31-Oct-2014.**

**2.2 Develop a flow diagram and a process description that captures the contributing factors and roles/responsibilities for CAMs and other project staff that are included in Project Manager’s determinations of the Estimate-to-Complete and Estimate-at-Completion.** Update the monthly reporting procedure to include this as clarification. Communicate the new information to Project Managers and direct them to ensure their CAMs understand these processes in order to ensure they take full ownership of their CA, ETC.

Status : Complete for NOvA, which achieved CD-4. **OPSS has developed ETC/EAC training materials (located on OPSS Sharepoint) as part of the EVMS training program and conducted an ETC/EAC course on 31-Oct-2014.**

**2.3 Develop a lab-wide process for projects to track and manage UB and MR in Cobra.** Incorporate into appropriate EVMS system documents and provide training to CAMs and Project Controls staff.

Status: Complete. OPSS has developed an EVMS training program that covers this topic. **Definitions of UB, MR, and Contingency are described in EVMS Desktop Instruction “12.PM-007.DT-04 - Contingency MR & UB”** located at:

[http://www.fnal.gov/directorate/OPMO/PolProc/12.PM-007/DT/Contingency\\_MR\\_and\\_UB.pdf](http://www.fnal.gov/directorate/OPMO/PolProc/12.PM-007/DT/Contingency_MR_and_UB.pdf)



## 2013 CAR-03

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**CAR-03: Need for additional CAM training in use of Fermilab EVMS policy so that system tools serve intended purpose. Training should include CAM roles, responsibilities and accountabilities.**

**Additional text from review report:** “This training issue results in non-compliance with ANSI/EIA-748. Despite initial/refresher training of NOvA project CAMs, the FRA EVMS management process is not fully instituted as a culture. Some CAMs were not using EVMS to effectively manage their Control Accounts and some viewed EVMS as more of a reporting than management tool and some CAMs had developed secondary processes for performance determination.”

# 2013 CAR-03 Response

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## Fermilab Responses to CAR-03 (from iTrack):

3.1 Review/revise/develop/consolidate applicable laboratory guidance that comprehensively addresses the **qualifications, training, assignment, system tools and R2A2s of CAMs** for major projects at Fermilab. Brief/train clarified guidance to all Project Managers and affected project staff.

Status: Complete. CAM responsibilities described in “12.PM-010.DT-01 - FRA EVMS Handbook” located at:

<http://www.fnal.gov/directorate/OPMO/PolProc/12.PM-010/DT/Earned%20Value%20Management%20Summary%20Guide.pdf>

3.2 In the Project Management Plan template, write the roles/responsibilities of CAMS as well as the oversight responsibilities for project managers for CAM training and guidance.

Status: Complete. A Project Management Plan template exists and will continue to be updated as best practices emerge.

See also Rich Marcum's presentation

## 2013 CAR-04

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### **CAR-04: Inconsistent identification and application of performance measurement techniques including Level-of-Effort (LOE.)**

**Additional text from review report:** “Some NOvA Control Accounts contain higher LOE values than recommended for accuracy of EVM reporting and several Control Accounts contained significant percent of LOE mixed with discrete work; there appeared to be no ownership of performance measuring techniques by the NOvA CAMs interviewed.”

# 2013 CAR-04 Responses

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## Fermilab Response to CAR-04 (from iTrack):

4.1 Incorporating feedback from current Project Managers and CAMs, review and **revise as appropriate the current Lab EVMS guidance documents** to clarify and standardize consistent application of performance measurement techniques. **Communicate changes** in the FRA approach to project managers and project controls staff. Validate the approach is being applied through the CD-2 Director's Reviews for CMS, Muon g-2, and Mu2e Projects in 2014.

Status: Complete. Definitions and applications of performance measurement techniques described in **EVMS desktop instruction “12.PM-002.DT-01 - Guidelines for PMT”** located at:

<http://www.fnal.gov/directorate/OPMO/PolProc/12.PM-002/DT/PMT%20guidance%20and%20clarification.pdf>

## 2013 CAR-05

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**CAR-05: Potential for schedule integrity issues (critical path) resulting from lags, missing logic/relationships and constraints.**

**Additional text from review report:** “The NOvA project is not in compliance with ANSI/EIA-748 or the FRA EVM System Description regarding scheduling and scheduling dependencies. This is an unresolved repeat concern from prior surveillances in March 2011 and March 2012.

The work scope on NOvA does not fully utilize logically sequenced activities and interdependencies required to meet project milestones and generate critical path schedules. The project schedule contains open relationships, constraints and lags (22% on in-progress work), which were not understood by CAMs; CAMs minimally used available scheduling data. There appears to be minimal interest in the project schedule at the CAM level.”



# 2013 CAR-05 Response

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## Fermilab Response to CAR-05 (from iTrack):

5.1 Verify project schedule integrity in pre-CD milestone review preparation to reduce/eliminate open ends, lags and constraints; issues from prior schedule reviews/reports, scheduling system analysis reports and the disciplined approval and incorporation of schedule change requests should be part of this verification, among other factors.

Status: Complete. **Schedule integrity checklist** in EVMS Desktop Instruction “12.PM-004.DT-05 - Guidelines for Schedule Review Checklist” located at:

<http://www.fnal.gov/directorate/OPMO/PolProc/12.PM-004/DT/Schedule%20Review%20Checklist.pdf>

Also – purchased Acumen Fuse tool for schedule integrity analysis. Have just begun using. See R. Marcum talk.

## 2013 CAR-06

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**CAR-06: Ensure that baseline changes to the current performance period do not occur (“rubber baseline.”)**

**Additional text from review report:** “The NOvA project is not in compliance with ANSI/EIA-748 or the FRA EVM System Description regarding implementing of changes. Work packages have been added to the baseline schedule with start date within the current performance period, a practice not in agreement with the standards noted.”

# 2013 CAR-06 Response

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## **Fermilab Responses to CAR-06 (from iTrack):**

6.1 Include in the Project Management Plan template guidance that compliance with the FRA EVMS procedures is the responsibility of the Project Manager and that all change requests must be reviewed and approved by the Project Controls Manager for compliance with the applicable procedures including those that govern the changing of the scheduled start date of work within the current performance period.

Status: Complete. A Project Management Plan template exists and will continue to be updated as best practices emerge. EVMS procedure 12.PM-007 being revised to include updated Change Control language. EVMS procedure revisions will be presented at December 2014 EVMS Surveillance Review.

Current period definition and policies noted in EVMS procedures and part of CAM training.

## 2013 CIOs

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**CIO\*-01:** Clarify level of integrated impact analysis in the change control process.

**Response summary:** EVMS procedure 12.PM-007 has been revised to include updated Change Control language and PMP template has been generated.

**CIO-01:** Unclear accounting for spares and associated distribution of scope/budgets/costs.

**Response Summary:** Sale of spares described in EVMS desktop instruction “12.PM-002.DT-02 - Sale of Special Process Spares

**CIO-02:** Limited level of detail in NOvA WBS Dictionary (total scope, limited quantification.)

**Response Summary:** Ref. examples of CMS, Mu2e at this review.

## 2013 CIOs continued

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**CIO-03:** Reduced indirect rates for special procurements are assessed at the beginning of the contract as opposed to over the life of the contract.

**Response Summary:** From CFO: “The laboratory is working on an alternative methodology for charging indirects on large complex procurements that will better align procurement effort with the associated indirect cost to the project. The new methodology is targeted for FY15 implementation, subject to DOE approval of the change to FRA’s Cost Accounting Disclosure Statement.”

CFO will address in accounting discussion session.

**CIO-04:** Consider consequences of routine accounting adjustments (e.g., rate adjustments) and involve CAMs directly on impact analysis.

**Response Summary:** Effects of rate adjustments described in EVMS Desktop Instruction “12.PM-007.DT-03 - Guidelines for Rate Changes”

## 2013 Root Causes

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### **RCC-01: CAM Roles, Responsibilities, Authorities and Accountabilities.**

**Additional text from review report:** “At least four (CAR-01, CAR-02, CAR-03, CAR-04) of the six recommended corrective actions involve the need for Fermilab management to establish clear expectations for the CAMs, provide the necessary training, and developing a process which regularly evaluates CAM performance to ensure that project-wide implementation is occurring.

**Response Summary:** The corrective actions to the noted CARs and CIO\*-01 provide **extensive attention to CAM selection, training** and identification of methods for senior lab and project management to take steps to improve the culture of effective management within the EVMS system. OPSS has supplemented EVMS documentation to include guidelines in “**Desktop Instructions**” and has implemented an **EVMS training program for CAMs, comprised of 1 hour modules** with topics such as Responsibilities and Fundamentals, Performance Measurement Baseline, Schedule Development, Monthly Statusing, ETC/EAC, and Variance Reporting.

**My observation: CAMs understand importance of EVMS.**

## 2013 Root Causes continued

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### RCC-02: Repeat Issues.

**Additional text from review report:** “Several corrective actions were previously identified in prior surveillances, including poor schedule quality and management-approved corrective actions that were ineffective in implementation.”

**Response Summary:** Actions have been identified within the CAP to improve EVMS procedures, training and oversight. The actions in this Corrective Action plan will be tracked to closure. Roles and responsibilities in the Project Management System assign responsibility for the EVMS system to OPSS and for CAM training and adherence to processes to Project Managers.

All previous EVMS reviews involved only one project. The new projects are working to avoid the same pitfalls.

## 2013 Root Causes continued

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### **RCC-03: Timely implementation of the EVMS.**

**Additional text from review report:** “Fermilab projects under development were noted to be implementing the FRA EVMS early in the development process...The EVMS Corrective Action Plan should address how the FRA EVMS will be implemented on new and developing projects.”

**Response Summary:** Early implementation of EVMS as noted in the report will be required on each project, with support from the Project Controls staff through OPSS. Management oversight of projects via the monthly Project Oversight Group (POG) includes attention to the timely implementation of EVMS for each project.

There is often tension between fixing a baseline and the project plan being in flux, but we are working to address this. For example, Muon g-2 plans to implement full EVMS this month for baselining in late spring/early summer 2015.



## 2013 Root Causes Continued

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### **RCC-04: Ensuring an Adequate Support Function.**

**Additional text from review report:** “Important EVMS activities, like modifying the EVMS Systems Description and EVMS procedures, were not completed until the surveillance review. As Fermilab moves to implement its mission through a large number of projects, the R2A2 for the Office of Project Support Services should be evaluated and a gap analysis performed to compare the size/make-up of this organization”

**Response Summary:** The COO has initiated multi-year staff and budget planning for the functions performed by OPSS and has initiated hiring and tailored assignments of project controls and other project support expertise to support current and future projects over a 3-year window. The recent hiring of a Project Controls Manager, who coordinates project controls practices across Fermilab, has yielded substantial progress in development of documentation and training.

Also, a consultant (Steve Foels) was enlisted to produce a roadmap for OPSS. We are following this roadmap.

## Closing thoughts

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- PM and EVMS knowledge base is growing with the portfolio of projects. OPSS facilitates sharing of practices.
- We continue to learn from our experience and have taken advice from the review committees seriously.
- Projects and lab management recognize the utility of EVMS as a management tool versus simply a compliance requirement.
- We are working toward further standardization and improvements in efficiency.
- This is an opportune time for a review since we have several projects entering the EVMS reporting phase. Thank you for your help.